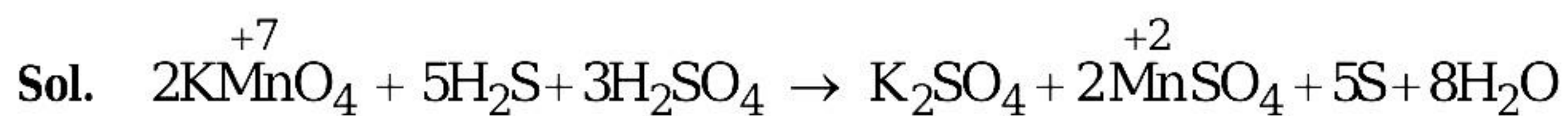


### d-BLOCK

1.  $\text{H}_2\text{S}$  (5 moles) reacts completely with acidified aqueous potassium permanganate solution. In this reaction, the number of moles of water produced is  $x$ , and the number of moles of electrons involved is  $y$ . The value of  $(x + y)$  is \_\_\_\_\_. **[JEE (Advanced) 2023]**
2. Which of the following combination will produce  $\text{H}_2$  gas? **[JEE (Advanced) 2017]**  
(A) Zn metal and  $\text{NaOH(aq)}$   
(B) Au metal and  $\text{NaCN(aq)}$  in the presence of air  
(C) Cu metal and conc.  $\text{HNO}_3$   
(D) Fe metal and conc.  $\text{HNO}_3$
3. Consider the following list of reagents : **[JEE (Advanced) 2014]**  
Acidified  $\text{K}_2\text{Cr}_2\text{O}_7$ , alkaline  $\text{KMnO}_4$ ,  $\text{CuSO}_4$ ,  $\text{H}_2\text{O}_2$ ,  $\text{Cl}_2$ ,  $\text{O}_3$ ,  $\text{FeCl}_3$ ,  $\text{HNO}_3$  and  $\text{Na}_2\text{S}_2\text{O}_3$ .  
The total number of reagents that can oxidise aqueous iodide to iodine is

## SOLUTIONS

1. **Ans. (18)**

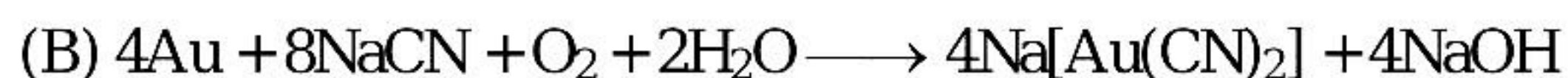


$x = 8$  (moles of  $\text{H}_2\text{O}$  produced)

$y = 14 - 4 = 10$  (number of electrons involved)

$x + y = 10 + 8 = 18$

2. **Ans. (A)**



(conc.)

(D) Formation of passive layer of  $\text{Fe}_2\text{O}_3$  on the surface of Fe and  $\text{NO}_2$  gas is evolved.

3. **Ans. (7)**

**Sol.** Acidified  $\text{K}_2\text{Cr}_2\text{O}_7$ ,  $\text{CuSO}_4$ ,  $\text{H}_2\text{O}_2$ ,  $\text{Cl}_2$ ,  $\text{O}_3$ ,  $\text{FeCl}_3$ ,  $\text{HNO}_3$  oxidise aq. iodide to iodine.

Alkaline  $\text{KMnO}_4$  oxidise aq. iodide to  $\text{IO}_3^-$

No reaction between iodide &  $\text{Na}_2\text{S}_2\text{O}_3$